

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously presented): A system for assisting regeneration of a storage/release NO_x trap integrated into an exhaust system of a motor vehicle diesel engine, which includes means for injecting fuel into the cylinders of the engine in the form of at least pilot and main injections and means for controlling the injection means to switch the engine periodically from a standard mode of operation using a lean mixture with one pilot injection and one main injection, in which NO_x are stored in the trap, to a regeneration mode of operation using a rich mixture, with at least two pilot or main injections depending on the engine load, in which NO_x are released from the trap and the trap is regenerated, and wherein the control means are adapted to control the injection means in the standard and regeneration modes of operation with two pilot injections or two main injections for engine loads less than or greater than a predetermined threshold value, respectively.

2. (Canceled)

3. (Previously presented): A system according to claim 1, wherein the predetermined load threshold value is defined by a brake mean effective pressure (BMEP) of approximately 3 bar.

4. (Previously presented): A system according to claim 1, wherein, for the engine being associated with means for recirculating exhaust gas to its inlet side, the control means are adapted to regulate the operation of the recirculation means when the engine is using a rich mixture.

5. (Previously presented): A system according to claim 1, wherein, in the mode of operation with two pilot injections, the two pilot injections are triggered in a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injection is triggered in an undercalibrated range up to approximately 35° (crankshaft) after top dead centre.

6. (Previously presented): A system according to claim 1, wherein, in the mode of operation with two main injections, the pilot injection is triggered for a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injections are triggered in an undercalibrated range from approximately 20° (crankshaft) ahead of top dead centre to approximately 120° (crankshaft) after top dead centre.

7. (Previously presented): A system according to claim 1, wherein the control means are adapted to control the injection means in order to operate the engine with a lean mixture for approximately 60 seconds and with a rich mixture for approximately 2 seconds.

8. (Previously presented): A system according to claim 1, wherein the engine is associated with gas inlet means for admitting gas thereto and the control means are adapted to reduce the quantity of gas admitted into the engine when the latter is operating in its regeneration mode.

9. (Canceled)

10. (Previously presented): A system according to claim 3, wherein, for the engine being associated with means for recirculating exhaust gas to its inlet side, the control means are adapted to regulate the operation of the recirculation means when the engine is using a rich mixture.

11. (Canceled)

12. (Previously presented): A system according to claim 3, wherein, in the mode of operation with two pilot injections, the two pilot injections are triggered in a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injection is triggered in an undercalibrated range up to approximately 35° (crankshaft) after top dead centre.

13. (Previously presented): A system according to claim 4, wherein, in the mode of operation with two pilot injections, the two pilot injections are triggered in a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injection is triggered in an undercalibrated range up to approximately 35° (crankshaft) after top dead centre.

14. (Canceled)

15. (Previously presented): A system according to claim 10, wherein, in the mode of operation with two pilot injections, the two pilot injections are triggered in a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injection is triggered in an undercalibrated range up to approximately 35° (crankshaft) after top dead centre.

16. (Previously presented): A system according to claim 3, wherein, in the mode of operation with two main injections, the pilot injection is triggered for a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injections are triggered in an undercalibrated range from approximately 20° (crankshaft) ahead of top dead centre to approximately 120° (crankshaft) after top dead centre.

17. (Previously presented): A system according to claim 4, wherein, in the mode of operation with two main injections, the pilot injection is triggered for a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injections are triggered in an undercalibrated range from approximately 20° (crankshaft) ahead of top dead centre to approximately 120° (crankshaft) after top dead centre.

18. (Canceled)

19. (Previously presented): A system according to claim 10, wherein, in the mode of operation with two main injections, the pilot injection is triggered for a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injections are triggered in an undercalibrated range from approximately 20° (crankshaft) ahead of top dead centre to approximately 120° (crankshaft) after top dead centre.

20. (Currently amended): A system for assisting regeneration of a storage/release NO_x trap integrated into an exhaust system of a motor vehicle diesel engine, which includes means for injecting fuel into the cylinders of the engine in the form of at least pilot and main injections and means for controlling the injection means to switch the engine periodically from a standard mode of operation using a lean mixture with one pilot injection and one main injection, in which NO_x

are stored in the trap, to a regeneration mode of operation using a rich mixture, with at least two pilot or main injections depending on the engine load, in which NO_x are released from the trap and the trap is regenerated, said regeneration mode of operation comprising at least one mode of operation with two pilot injections, and wherein, in the mode of operation with two pilot injections, the two pilot injections are triggered in a range from approximately 50° (crankshaft) to approximately 5° (crankshaft) ahead of top dead centre for the cylinder concerned and the main injection is triggered in an undercalibrated range up to approximately 35° (crankshaft) after top dead centre.

21. (New): A system according to claim 20, wherein, in the regeneration operating mode, the injection means are suitable for implementing a series of injections consisting of (i) a plurality of pilot injections comprising at least two pilot injections triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre of the cylinder concerned and (ii) the single main injection triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre.

22. (New): A system according to claim 1, wherein, in the regeneration operating mode, the injection means are suitable for implementing a series of injections consisting of (i) a plurality of pilot injections comprising at least two pilot injections triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre of the cylinder

Amendment
Serial No. **10/532,129**
Attorney Docket No. **052449**

concerned and (ii) the single main injection triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre.